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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,261

11/17/2005

Uwe Lehmann

P&P-100

9287

23557 7590 12/21/2009
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EXAMINER

SASAKI, SHOGO

ART UNIT

PAPER NUMBER

1797

NOTIFICATION DATE

DELIVERY MODE

12/21/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

euspto@slspatents.com

Office Action Summary	Application No. 10/539,261	Applicant(s) LEHMANN ET AL.	
	Examiner Shogo Sasaki	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/9/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/16/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Amendments to the specification and the claims are acknowledged. Cancellation of claim 6 is also acknowledged.

Information Disclosure Statement

2. The information disclosure statement (IDS) filed on 12/21/2007 fails to comply with 37 CFR 1.98(a)(3) because it does not include concise explanations of the relevance for some of the non-patent literature cited therein, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information. The reference numbers R3, R6 and R10 included in the IDS filed on 12/21/2007 are not in the English language, however they do not include concise explanations of the relevance. The IDS have been placed in the application file, but the abovementioned information referred to therein has not been considered.

Claim Objections

3. Regarding claims 1, 11 and 19, it is noted that generally accepted transitional phrase is "comprising." It is suggested to use "comprising" instead of "having."

4. Regarding claim 11, ")" in line 4 after ")" and before "where" should be deleted.

5. Regarding claims 1, 11 and 19, recitations [claims 1 and 19] "for a miniaturized gas chromatograph" and "for a fluid stream having molecules to be analyzed (analyte molecules);" and [claim 11] "for a fluid stream having molecules to be analyzed (analyte molecules)," which are directed to the manner in which a claimed apparatus is intended to be used does not distinguish the claimed apparatus from the prior art.

Specification

6. The amendment filed 9/9/2009 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The definition of the

turning points in the original disclosure and claims are different from the one introduced in the amended specification. The new definition is based on a newly introduced subject matter. Applicant's original definition of turning points is as follows "A turning point (such as 7, 8, 7a, 8a) as defined in the present invention as a point at which the curved direction of the channel and therefore also the flow direction of the fluid stream flowing through the channel changes to the particular other direction." The new definition is "A turning point as defined in the present invention as a point at which the curved direction of the channel and therefore also the flow direction of the fluid stream flowing through the channel inflects to opposite curvature." That is completely different from the original definition. Applicant's arguments in the remark in view of the supplied extract from Wikipedia were considered. However examiner asserts that the newly defined turning points were not described in the originally filed application (Also see paragraph 10 below.). The figures do not show a channel in the form of a polynomial having inflection points. The figures do not depict a structure, which is defined mathematically. It is noted that the element 7 in the figures are not even considered inflection points in a mathematical sense.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling.

Claims 1, 11 and 19 claims a separating column. However said claims do not claim any structural elements that define a column having a channel to be a column capable of separating analytes.

Such structural element(s) is/are critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure.

9. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1, 7, 8, 16, 17 and 19 recites "diameter." It is not clear if the diameter in said claims, for e.g., recited by "diameter of the channel" or "diametrically opposite curves," refers to the diameter defined by a cross-sectional area of a channel/conduit having a circular conduit cross-section; or it is the diameter defined by a channel/conduit formed into a shape having turning points (See Figures 2-4 of instant invention.). It is also not clear what structure or what part of what structure is greater than the "path."

Applicant originally defines the turning point as "a point at which the curved direction of the channel and therefore also the flow direction of the fluid stream flowing through the channel changes to the particular other direction" (page 4, lines 8-12). The curved path will inherently have infinite numbers of turning points at corresponding numbers infinitesimal curvatures. The direction of the path on a tuning point changes at all times. Applicant defines the curve as "**any** curved region of the channel having the same curve direction, and such a curve lies between two directly sequential turning points, which mark a change to the particular other direction." (page 4, lines 14-18). The direction of the path along the curve changes at all times. (According to the figures, inflection points only exist along 9 between alternating curved path.)

The turning points; the curve; and the relationships between the two depicted in the figures appears to be different from how they are defined in the specification. The reference characters 7a, 8 and 8a in Fig. 2-4 appear to be at the linear path defined by two joined round paths. It is unclear what path between which tuning points is considered a curve. In light of above assumed definitions of the diameter:

(1) It is unclear how a diameter of a conduit could be greater the length defined by the path between two turning points; and

(2) It is unclear how a diameter defined by a channel/conduit formed into a round shape could be greater than the length defined by the path between two turning points. The diameter of a material formed into a round shape is defined by circumferential structure of said material formed into a round shape. Examiner fails to see how this diameter could be greater than the path, which corresponds to the circumference correlated to said diameter.

10. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation “channel having opposing curves having turning points where the flow direction of the fluid stream flowing through the channel inflects to an opposite curvature, characterized in that the diameter of the channel is greater than the path which an analyte molecule covers through diffusion on its way between two sequential turning points located at the beginning of sequential curves that each have the same curvature” in claims 1, 11 and 19 was not described in the original specification and the claims (See paragraph 6 above.). The figures do not depict a structure, which is defined mathematically. The figures do not show path in the form of a polynomial having inflection points. It is noted that the element 7 in the figures are not even considered inflection points in a mathematical sense.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitations [claims 1, 11 and 19] “where the flow direction of the fluid stream flowing through the channel inflects to an opposite curvature, characterized in that the diameter of the channel is greater than the path which an analyte molecule covers through diffusion on its way between two sequential turning points located at the beginning of sequential curves that each have the same curvature;” and [claims 2 and 19] entire recitations, are worded in the event if a fluid/analyte flows/diffuses through the channel of the separating column. These limitations attempt to define the structure of the channel of the separation column, specifically the curves of the channel having turning points and the diameter of the channel, in terms of how the fluid travels within the channel; and diffusive features of a fluid to be analyzed. How the fluid flows through the channel does not structurally define the inflection and the curvature of the curves. In the latter case, the diffusion length of a molecule in a separation column is dependent on various factors, such as temperature; pressure; types of fluid/analyte and carrier gases; packing materials in the column; and etc. (See page 5 of instant application). As a result of this large number of unknown factors: the structure of the curves on the channel; the size of the claimed channel diameter; and the structural relationships between curves with turning points and the diameter of the channel are all unclear, thus all leading to indefinite claims.

Claims 4, 7-10, 15-17 and 19 recite a loop(s) having legs and the curves to further define the claimed invention "separating column." According to the specification, said elements should further define the channel. Said elements are not separate elements for the channel.

Claim 15 recites the limitation “the leg.” There is insufficient antecedent basis for this limitation in the claim.

Regarding claims 11, 12 and 14, it is unclear how a micro-chromatogram defined by a continuous column/channel formed into multiple curves and loops comprises multiple columns. According to the specification, the chromatogram/column shown in figures is defined by a channel formed into loops and curves that are bent and oriented in series and/or parallel configuration.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-20 are rejected under 35 U.S.C. 102(a) and (b) as being anticipated by Lehmann et al. (IDS: Sensor 2003 Proceedings, 157-161). It is assumed that the publication date of the reference is 1/27/2003 or 1/22/2003; or before these dates. Applicant is required to show that the publication date (and/or online availability date) is after 1/22/2003 to overcome 102(b) rejection; and show that the publication date (and/or online availability date) is after 1/27/2003 to overcome 102(a) rejection, along with the English translation for 10303107.3.

Regarding claims 1-20, Lehmann et al. disclose the devices recited in said claims (page 159-160; and Fig. 4). The column in Fig. 4 shows both configurations of leg connections, legs that are connected by linear sections and legs that are connected to one another by curves.

Note: The use of reference characters is to be considered as having no effect on the scope of the claims. MPEP 608.01(m)

15. Claims 1-20 are rejected under 35 U.S.C. 102 as being unpatentable over by the Applicant's Admission of Prior Art (Fig. 1; and page 10, line 11 - page 11, line 6.).

Regarding claims 1-20, the Applicant's Admission of Prior Art (AAPA) discloses a separating column having a channel with turning points which read on currently presented claims.

A statement by an applicant in the specification or made during prosecution identifying the work of another as "prior art" is an admission which can be relied upon for both anticipation and obviousness determinations, regardless of whether the

admitted prior art would otherwise qualify as prior art under the statutory categories of 35 U.S.C. 102.

Response to Arguments

16. Applicant's arguments filed 9/9/2009 have been fully considered.

17. It is noted that applicant did not respond to paragraph 1 of last office action regarding IDS filed on 12/21/2007.

18. The amendments to the specification are not accepted (Please see paragraphs 6 and 10 above.). It is also noted that the curve direction is not a curvature. The curve direction changes at all times along the curved path of the channel disclosed in the figures. The curvature is more so a degree of the curve. It is also noted that the element 7 in the figures are not inflection points.

19. Applicant's arguments have been fully considered but they are not persuasive. The 112(1) rejections are maintained.

Applicants arguments (pages 10-13) are based on the structure (the channel) of invention, which is defined in terms of how the fluid travels within the channel; and diffusive features of a fluid to be analyzed. How the fluid flows through the channel does not structurally define the inflection and the curvature of the curves. In the latter case, the diffusion length of a molecule in a separation column is dependent on various factors, such as temperature; pressure; types of fluid/analyte and carrier gases; packing materials in the column; and etc. As a result of this large number of unknown factors: the structure of the curves on the channel; the size of the claimed channel diameter; and the structural relationships between curves with turning points and the diameter of the channel are all unclear, thus all leading to indefinite claims. The claims are unclear that one cannot access the scope of the claims. The claims are interpreted to mean a column/chromatogram comprising a channel having opposing curves. (Please also see entire 112(1) and 112(2) rejections above.)

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shogo Sasaki whose telephone number is (571)270-7071. The examiner can normally be reached on Mon-Thur, 10:00am-6:30pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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12/7/2009

/Brian R Gordon/

Primary Examiner, Art Unit 1797